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Busby WS	X	
O'Neill KK	X	
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IN REPLY TO RFP CC NO

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RF-46469 (Rev 9/92)

EG&G ROCKY FLATS

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April 12, 1993

93-RF-4460

Richard J Schassburger
Acting Director
Environmental Restoration Division
DOE, RFO

Attn R H Birk

MARCH 15 AND 29, 1993 MEETING MINUTES FOR OPERABLE UNIT NO 7 (OU 7) HUMAN HEALTH RISK ASSESSMENT TECHNICAL MEMORANDUM NO 1, EXPOSURE SCENARIOS - WSB-232-93

Attached are the meeting minutes for the above-referenced dates The first meeting was a preliminary meeting between EG&G Rocky Flats, Inc (EG&G) and DOE/RFO to formulate strategy for the March 29,1993 meeting with the Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH) to discuss agency comments on the Exposure Scenario technical memorandum

Please feel free to contact Tim O'Rourke of Remediation Project Management at extension 8577 or digital pager number 5475 should you have any questions or comments

W S Busby
Acting Director
ERM/Remediation Project Management

TPO.dmf

Orig and 1 cc - R J Schassburger

Attachments
As Stated (2)

DATE 9-2-93

ADMIN RECORD

A-OU07-000264

MEETING MINUTES

Date	March 15, 1993	
Time	9 00 -11 00	
Location	EG&G, Interlocken	
Subject.	Formulation of Response Strategy to Colorado Department of Health (CDH) Comments on Technical Memorandum No 1, Exposure Scenarios for Operable Unit No 7	
Attendees	Tim O'Rourke	EG&G
	Rick Roberts	EG&G
	Bob Birk	DOE/RFO
	Bruce Thatcher	DOE/RFO
	Greg Davis	S M Stoller Corporation
	Allen Crockett	S M Stoller Corporation
	Yvette Lowney	Gradient Corporation

The objective of the meeting was to discuss with DOE the strategy for responding to CDH comments on the January 15, 1993, Draft Final Technical Memorandum No. 1 (TM 1), Human Health Risk Assessment, Present Landfill (IHSS 114), the Inactive Hazardous Waste Storage Area (IHSS 203), and the East Landfill Pond and Adjacent Spray Evaporation Areas, Exposure Scenarios

Rick Roberts identified the following topics for discussion

1) Disputable Agency Comments/Issues
2) Review and Approval Negotiations for Intake Factors
3) Request for Additional Exposure Scenarios
4) Miscellaneous Issues

The topics, discussion, and resolution are presented below.

Disputable Agency Comments/Issues

Four areas of dispute were discussed as follows

1) Exposure to Contaminated Subsurface Soil

Technical Memorandum No 1 included an evaluation of exposure to subsurface soil contamination only for the future onsite construction worker scenario CDH requested that the Human Health Risk Assessment (HHRA) evaluate subsurface soil contamination for one additional exposure scenario It was the opinion of EG&G and DOE/RFO however, that this could potentially set a precedent for assessing subsurface soils on all exposure scenarios DOE concurred with EG&G that the evaluation of exposure to subsurface soil contamination

in the Phase I HHRA was appropriate only for the future onsite construction worker scenario Current landfill workers do not perform intrusive waste disposal activities, and are therefore, not exposed to subsurface soil contamination. The Phase II HHRA will evaluate exposure to subsurface soil for the other exposure scenarios

2) IHSS-Specific Versus OU-Specific Risk Assessment

Technical Memorandum No 1 proposes that one HHRA be performed for the entire operable unit (OU) The CDH requested that the HHRA be performed on an IHSS-specific basis. DOE agreed with EG&G to perform one OU-specific HHRA because the boundary for IHSS 114 is identical to the operable unit boundary In addition, IHSS 203 is entirely included within the boundary of IHSS 114 However, DOE and EG&G were unable to agree on the appropriate method for aggregating data within OU 7. DOE and EG&G agreed to discuss further the methodology used to evaluate data in the risk assessment. DOE suggested an evaluation of the practicality of developing a cumulative-risk isopleth map for OU 7 In this data analysis approach, contaminant distribution maps would be used to develop isopleths of cumulative risk by media This information would be used to identify risk "hot spots". Cost and limitations of the RFEDS database were identified as factors potentially making this data analysis technique impracticable.

3) Calculation of Carcinogenic and Non-Carcinogenic Exposures for Children

In accordance with EPA risk assessment guidance, it was assumed in TM 1 that contact rates (except for soil ingestion) are approximately proportional to body weight. Therefore, child residential intakes would not be estimated separately for any exposure pathway except soil ingestion for which children are assumed to have a higher daily intake rate. CDH requested that the HHRA estimate child residential exposures for all exposure pathways

DOE agreed with EG&G to dispute CDH's request The basis of the dispute would be 1) EPA guidance, 2) precedence of other EPA Region VIII Records of Decisions (RODs), and 3) information in the technical literature Gradient was tasked with performing a review of EPA Region VIII RODs

4) Modification of RMEs Based on Site-Specific Conditions

Published values for reasonable maximum exposures (RMEs) were modified in TM 1 based on site-specific considerations at OU 7. CDH requested that the HHRA be performed using both published RMEs and the modified RMEs presented in TM 1 DOE concurred with EG&G that only one risk assessment be performed using only one set of RMEs DOE suggested that technical information supporting the modified values be presented to CDH for approval prior to incorporation into a single risk assessment

Additional Review and Comment Negotiations for Intake Factors

Technical Memorandum No 1 presents assumptions for various intake factors including the fraction of inhaled volatile organic compounds (Section 5 1 2), the matrix effect for soil and produce uptake (Section 5 1 3), plant uptake factors from soil (Section 5.1 4), and dermal contact factors (Section 5 1 5) CDH disputed these assumptions and resulting intake factors

EG&G believes the alternative values proposed by CDH are unreasonably conservative and recommended further negotiations with CDH to agree upon more reasonable values.

DOE concurred with EG&G to provide further technical justification for intake assumptions in a separate submittal concurrent with the Contaminants of Concern Technical Memorandum.

Additional Exposure Scenarios

CDH recommended the addition of (1) a future onsite construction worker exposure scenario, and (2) an additional offsite resident located directly east of the landfill at the RFP boundary where residential building may occur in the future

DOE recommended that both exposure scenarios be included in the HHRA. In addition, DOE recommended that the exposure scenario for the future onsite construction worker consider OSHA TLVs and that the exposure scenario for the future offsite resident be consistent with the location of the receptor used for the OU 3 HHRA

Miscellaneous Issues

Technical Memorandum No. 1 evaluates wind deposition of contaminated particulates onto homegrown produce CDH requested that the HHRA also evaluate the uptake by plants of wind-deposited contaminants following incorporation into the subsurface soil column EG&G and DOE concurred that plant uptake of contaminants via this exposure pathway was insignificant relative to deposition of contaminated particulates directly onto homegrown produce because of dilution of contaminants during tilling of the soil and limited uptake by plants. Therefore, the rationale for not evaluating this exposure pathway in the HHRA will be discussed with the regulators.

Several CDH comments questioned the approach in TM 1 for evaluating the suspension of particulates within the operable unit and suggested that resuspension within OU 7 should be additive EG&G and DOE concurred that resuspension within the IHSS will not be performed because resuspension is not additive

Various comments by CDH regarding the exposure frequency assumptions for the eco-researcher exposure scenario effectively make this exposure scenario similar if not identical to the industrial exposure scenario. EG&G and DOE concurred that the assumptions for exposure frequency for the eco-researcher should be aggressively negotiated to a more reasonable duration than that suggested by CDH.

MEETING MINUTES

Date	March 29, 1993
Time.	1.00-4:00
Location	EPA Conference Center, Denver
Subject	Agency Comments on Technical Memorandum No 1, Exposure Scenarios, Operable Unit No 7, Present Landfill, Rocky Flats

Attendees			
	Tim P O'Rourke	EG&G-ERM	966-8577
	Rick Roberts	EG&G-ERM	966-8508
	Bob Birk	DOE/RFO	966-5921
	Greg Davis	S M. Stoller Corp	449-7220
	Yvette Lowney	Gradient Corp	442-4313
	Stephen Foster	Gradient Corp	442-4313
	Amy E. Johnson	CDH	692-2636
	Diane Niedzwiecki	CDH	692-2651
	Carl Spreng	CDH	692-3358
	Susan Griffin	EPA	
	Bill Fraser	EPA	294-1081

A. Primary Items

1 Exposure to subsurface soil as pathway of exposure to current landfill workers

Issue/Discussion CDH requested an evaluation of the health risks to current landfill workers and future construction workers from exposure to subsurface soil or a justification for not assessing this exposure pathway. DOE maintains that current landfill operations do not include intrusive waste disposal activities, therefore current landfill workers are not exposed to subsurface soils DOE agreed that future construction workers may be exposed to subsurface soil

Resolution The risk assessment will evaluate exposure of future onsite construction workers to subsurface soil but will not evaluate exposure of current landfill workers to subsurface soil The exposure duration for current landfill workers will be increased from three to five days per week to reflect the current schedule.

2. Conducting risk assessment, or aggregating data, on an IHSS-specific basis rather than on an OU-specific basis

Issue/Discussion CDH indicated that the use of the term IHSS in their comments was misleading because they actually were referring to hot spots CDH wants the risk associated with hot spots separated from the risk associated with the entire OU CDH recommended use of the OU 1 approach in which hot spots were identified according to the flow chart for selecting contaminants of concern (COCs)

Resolution. The risk assessment for OU 7 will be performed on an OU-specific, not IHSS-specific, basis Risks associated with hot spots will also be determined Identification of hot spots will proceed according to the OU 1 process which delineates hot spots through the identification of contaminants of concern

3. Segregating childhood exposures for separate analysis

Issue/Discussion In accordance with EPA risk assessment guidance, ingestion of soil is the only exposure pathway evaluated separately for children. CDH requests that risks to children be calculated for all exposure pathways.

Resolution This issue was tabled CDH will evaluate its position on this issue and DOE will determine what approach/precedent was taken for OU 1. Issues that were raised included determining the definition of a child and the associated exposure factors CDH will provide guidance regarding the appropriateness of comparing subchronic exposures to chronic RfDs or RfCs and whether protection of children is already incorporated into generation of RfC values, thereby negating the need to evaluate childhood exposures separately.

4 Generating "adjusted" and "unadjusted" reasonable maximum exposure (RME) values in the risk assessment

Issue/Discussion. RME values were selected in the Exposure Scenarios Technical Memorandum based on site-specific considerations at OU 7. CDH indicated that they are willing to accept reasonable adjusted RME values if they are supported by site-specific data or geochemical modeling based on site-specific data Gradient indicated that published chemical-specific values are appropriate justification for many compounds (especially organics)

Resolution Chemical-specific RME values used in the OU 7 risk assessment will be submitted to CDH and EPA for review and approval. The values will be considered part of the RME exposure estimate These will be submitted as draft tables of the Toxicity Assessment Technical Memorandum The categories to be covered for potential adjusted RME values are described below

B Potential Adjusted RME Categories

1 Lung retention/absorbed fractions of volatile organic compounds (VOCs)

2 Matrix effects for soil and vegetable ingestion

3 Dermal permeability factors for contaminants in soil

Issue/Discussion. DOE believes that appropriate site-specific and chemical-specific information exists to generate RME values that more accurately reflect conditions at OU 7. CDH and EPA agreed with DOE's position but will require further justification before approving the chemical specific RME values

Resolution Chemical-specific information that will be used to calculate the RME values will be submitted in the form of a preliminary draft of a table to be included in the Toxicity Assessment Technical Memorandum The draft table of adjustments and justifications will be submitted to the agencies immediately following the COC Technical Memorandum

C. Exposure Scenario Additions

1 Future construction worker.

Issue/Discussion CDH requested that a future construction worker exposure scenario be evaluated to asses acute exposures via ingestion or dermal contact with subsurface soil and inhalation of soil vapors and dust

Resolution DOE agreed to include the future construction worker exposure scenario in the risk assessment for OU 7.

2 Future off-site resident

Issue/Discussion CDH requested that health risks be calculated for a future off-site resident located east of the plant site along the predominant wind vector emanating from OU 7.

Resolution DOE agreed to include this exposure scenario in the baseline risk assessment for OU 7 It was decided that a receptor will be located at the Rocky Flats Plant boundary, east of OU 7 near Woman Creek This will be consistent with exposure scenarios that will be addressed during Phase II

D Other Issues

1 Plant uptake from wind deposition at offsite locations

Issue/Discussion CDH requests that the risk assessment consider plant uptake of contaminants in addition to wind deposition directly onto plants DOE agreed that plant uptake will be considered for all onsite exposure scenarios because contaminant concentration in subsurface soils adjacent to the root zone are significant DOE does not believe, however, that plant uptake would be significant for offsite exposure scenarios based on the following rationale The source of offsite contamination is wind deposition directly onto plants and adjacent surface soils Relocation of contaminants from surface soils through subsurface soil, which was initially uncontaminated, and into plant tissues, require physiochemical and/or mechanical transport mechanisms that significantly reduce contaminant concentrations relative to contaminants deposited directly onto plants

Resolution: DOE will provide CDH with additional technical justification regarding fractionation of contaminants during plant uptake

2. Resuspension/deposition concerns regarding direct exposure for onsite receptors.

Issue/Discussion CDH indicated that the difference between "direct contact" and "wind-blown" routes of exposure is not fully explained in Technical Memorandum No. 1 until page 4-12. A second issue is CDH's concern that use of analytical data from clean fill would "dilute" contaminant concentrations in the OU-specific risk assessment and eliminate identification of hot spots

Resolution· Technical Memorandum No. 1 will be modified so that the explanation of the "direct contact" and "wind-blown" routes of exposure occurs earlier in the document. The baseline risk assessment will include analytical data for the clean fill since this is the predominant media that will be contacted given the constraints of the Phase I action. As discussed earlier, hot spots will be identified per the OU 1 process for selecting COCs

3 Ecological researcher exposure assumptions

Issue/Discussion· No guidance is available for the exposure frequency/duration for a future onsite ecological researcher exposure scenario DOE is concerned that the exposure assumptions suggested by CDH may make this exposure scenario similar if not identical to the industrial worker exposure scenario CDH objected to modifying the intake factor on the basis of area and recommended intake factors based on certain time assumptions

Resolution. This issue was tabled to allow CDH and DOE more time to investigate appropriate and reasonable frequencies and duration for ecological research projects.

4 Updating demographics

Issue/Discussion. CDH commented that certain statements related to demographics are incorrect and the DOE 1990 reference cited in Section 3 0 of Technical Memorandum 1 is based on 1980 census data, which is considered to be outdated DOE indicated that the census data is not directly relevant to Technical Memorandum No 1 because the exposure scenarios to be evaluated were not selected on the basis of census data, but rather, have been directly specified. Therefore, it would be an unnecessary expenditure to apportion significant additional resources to update the technical memorandum with current census data DOE suggested eliminating the section on demographics EPA concurred that this section is not essential for the identification of exposure scenarios since these have been pre-selected. Elimination of this section however, would not allow one to determine how reasonable the chosen exposure scenarios are.

Resolution DOE will decide whether the demographics section of the technical memorandum will be eliminated or retained If retained, erroneous information and inconsistencies will be checked against more recent census data and modified to reflect more current projections

E. Specific Comment Resolution

Issue/Discussion· No specific comments were identified that required additional discussion at this time

Resolution Resolution of specific comments will occur via the standard responsiveness summary process

F. Other Issues

An additional meeting for final comment resolution has been scheduled for April 20, 1993 at the EPA conference center from 1 00-4 00